WHAT IS CLAIMED IS:

1. An isolated protein having the amino acid sequence as set forth in SEQ ID NO:1.

2. The protein of claim 1 that is attached to a polyethylene glycol in an amount sufficient to make the protein less immunogenic or to increase the half-life.

3. The protein of claim 2 that is complexed with an active site inhibitor.

4. The protein of claim 3 wherein the active site inhibitor is complexed to the protein prior to the attachment to the polyethylene glycol.

5. The protein of claim 3 wherein the active site inhibitor is a monomer or polymer of glucosamine.

6. The protein of claim 5 wherein the glucosamine is selected from the group consisting of tetraglucosamine and heptaglucosamine.

7. The protein of claim 1 that is glycosylated or hyperglycosylated to make the protein less immunogenic.

8. A pharmaceutical composition comprising the protein of claim 1 and a pharmaceutically acceptable vehicle, carrier or excipient.

9. An isolated nucleic acid encoding the protein of claim 1.

10. An isolated antibody recognizing the protein of claim 1.

11. A method of killing bacteria comprising administering the protein of claim 1 to a situs wherein killing of bacteria is desired in an amount effective to kill bacteria.

12. The method of claim 11 wherein the protein is administered to a human or animal patient in need of such administration.

13. The method of claim 11 wherein the protein is administered to a food product, a medical device, a medical examination setting, or an implant.

14. The method of claim 11 wherein the bacteria killed is *S. aureus*.

15. The method of claim 11 wherein the bacteria killed is MRSA.

16. The method of claim 11 wherein the bacteria that are killed have 6-O-acetylated peptidoglycans in their cell walls.

17. The method of claim 11 wherein the peptidoglycan is N,6-O-diacetylmuramic

acid.

18. The method of claim 11 wherein the bacteria that are killed are selected from the group consisting of streptococci, tuberculosis and anthrax.

19. A method of preparing the protein of claim 1 comprising transferring a vector which contains nucleic acid coding for the protein of claim 1, and culturing the vector in a suitable medium so that the protein of claim 1 is expressed.

20. A method of reducing the immunogenicity or increasing the half-life of Chalaropsis Lysozyme comprising complexing it to glucosamine, followed by coupling it to PEG.

21. The method of claim 20 wherein the PEG is selected from the group consisting of single chain PEG and branched chain PEG.

22. The method of claim 20 wherein the glucosamine is selected from the group consisting of tetraglucosamine and heptaglucosamine.

23. A Chalaropsis Lysozyme having reduced immunogenicity or increased half-life produced by the method of claim 20.

24. An isolated N,O-diacetylmuramidase having at least three pairs of active amino acid residues including Asp 6 and Asp 194, Glu 33 and Glu 102, and Asp 98 and Glu 100, as numbered based on the original Chalaropsis sequence, or Asp 6 and Asp 190, Glu 33 and Glu 99, and Asp 95 and Glu 97, as numbered based on the corrected Chalaropsis protein according to Claim 1

25. A pharmaceutical composition comprising the N,O-diacetylmuramidase according to Claim 24 and a pharmaceutically acceptable vehicle, carrier or excipient.

26. The muramidase of Claim 24 which is selected from the group consisting of β-1,4-N-acetylmuramidase and β-1,4-N,6-O-diacetylmuramidase

27. A Chalaropsis Lysozyme having the atomic coordinates as set forth in Appendix A.

28. A method of treating or preventing a bacterial infection comprising administering the protein of claim 1 to a human or animal patient in need of such treatment in an amount effective to treat or prevent the infection.

29. A diagnostic kit for determining the presence of lysozyme Ch proteins in a sample suspected of containing such proteins comprising the antibody of Claim 10, means to introduce the antibody to the sample, and a means for determining the presence of binding of the antibodies to the lysozyme proteins in the sample.

30. A diagnostic kit for determining the presence of antibodies to lysozyme Ch in a sample suspected of containing said antibodies comprising the protein of Claim 1, means to introduce the protein to the sample, and a means for determining the presence of binding of the protein and antibodies to lysozyme Ch in the sample.